

$$4) a) 3x(2x+y+1) = 6x^2 + 3xy + 3x$$

$$b) 3a(a^2 + 2a^4) = 3a^3 + 6a^5$$

$$c) ab^2(a-b) = a^2b^2 - ab^3$$

$$d) -5x^3(3x^2 + 7x + 11) = -15x^5 - 35x^4 - 55x^3$$

$$e) x^2y(2x-y+2) = 2x^3y - x^2y^2 + 2x^2y$$

$$f) 7x^2y(3x+y) = 21x^3y + 7x^2y^2$$

$$g) 5x^3y^3(x^2+x-1) = 5x^5y^3 + 5x^4y^3 - 5x^3y^3$$

$$h) 3a^2b^3(3a-b+1) = 9a^3b^3 - 3a^2b^4 + 3a^2b^3$$

$$5) a) 2 \cdot P = 6x^3 - 4x^2 - 8x + 2$$

$$P = 3x^3 - 2x^2 - 4x + 1$$

$$b) x \cdot P = x^3 - 3x^2 - 5x \rightarrow P = x^2 - 3x - 5$$

$$c) 4x^2 \cdot P = -12x^5 + 4x^3 - 8x^2 \rightarrow P = -3x^3 + x - 2$$

$$d) 2xy^2 \cdot P = 2x^2y^2 + 4xy^3 + 6x^2y^3$$

$$P = x + 2y + 3xy$$